

# TEST COMPLEX EXAMINES FUTURE MUNITIONS

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Chuck Wullenjohn

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## Introduction

Driven by major scientific advances, weapon systems and munitions have evolved rapidly in recent years and will continue to do so in the future. Ground combat operations in the 21st century will incorporate more frequent application of electronics and artificial intelligence than ever before. Even to the casual observer, many weapons and electronic systems seen in movie classics such as *Star Wars* and *2001: A Space Odyssey* no longer seem so far-fetched.

A new test complex at U.S. Army Yuma Proving Ground (YPG) symbolizes the installation's commitment to the future. Through careful planning, innovative thinking, and a close partnership between private industry and the proving ground, the newly constructed Smart Weapons Test Range complex was dedicated in late January.

The Smart Weapons Test Range was developed to allow testing of sensors and "intelligent" weapon systems in a desert environment with minimal disruption from noise or vibration. The test site rep-

resents not only an important investment in the future of munitions testing at YPG, but is also a significant step toward reducing the worldwide danger to civilian populations posed by unexploded ordnance.

The vast range area, approximately 15,000 acres, features relatively flat terrain and restricted airspace. The test complex consists of a solar power plant, control building, target tracks, an instrumentation power grid, and access roads. Jay Marchant, Mine, Countermine and Demolitions/Unexploded Ordnance Team Leader, says that about 20 YPG employees will work at the site during active test operations, supplemented by another 10 to 15 flying in from around the country.

## Purpose

The Smart Weapons Test Range will be used to test and evaluate modern munitions incorporating "smart" computers that enable them to discriminate between targets. These smart weapons will operate only when programmed to do so. The complex's solar power facility will generate and provide electrical power

for the complex, which is located about 5 miles from existing power lines.

The isolated location will help ensure that the test site remains free from external noise and vibration and that people, property, and the environment are not endangered in the unlikely event of an accident.

Alan Tinseth, who has 17 years of test experience at the proving ground, manages operations at the new range. He said formal planning began in 1996. "Construction of the building and the adjacent solar power field was ongoing for about 2 years," Tinseth explained, "and what we ended up with is a state-of-the-art facility that helps make Yuma Proving Ground a leader in the smart munitions test area. Because of the facility's size and remoteness, we can manage and operate several tests at the same time."

## Current Testing

Items currently undergoing testing at the site include the Wide Area Munition (WAM), a smart weapon meant to destroy enemy armored vehicles, and various

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**Soviet T-72 tank is killed by a WAM submunition**

offshoots of WAM. Countermining operations, which often involve using explosives to clear minefields, are also being tested. Future tests include designing and constructing a minefield to test airborne detection systems aboard drones or satellites. Directed energy weapons may also be tested.

The WAM currently being tested at the Smart Weapons Test Range incorporates a characteristic common to all modern U.S. mines that ensures they won't become a long-term hazard. They are designed to either self-neutralize or self-destruct at the completion of the mission. This interval of time, which ranges between 4 hours and 30 days, is set by the person deploying the device.

In the desert southwest, a variety of unexploded military ordnance has been discovered in long-abandoned training areas, some dating back to World War II. Some of these areas are now public lands. Unfortunately, many of these 50-plus-year-old explosives remain potentially lethal. Though some were removed safely or detonated with no injury, others may still remain. This problem will not occur as a result of the self-neutralizing or self-destructing systems tested at the Smart Weapons Test Range. Test activities at the range will help leave a positive legacy for future generations.

The site's solar power facility was developed through a cooperative research and development agreement (CRADA) between YPG and Arizona Public Service, a power utility. This facility represents the proving ground's first attempt at using southwest Arizona's abundant sunshine to dependably provide the large quantities of energy needed. The proving ground has numerous other solar power sites at a variety of locations, one dating back to 1978, but this is the only test site totally dependent on solar power. To establish the power facility, the proving ground provided solar panels, the building, and storage batteries. Arizona Public Service provided computer software and valuable electrical monitoring expertise.

"We're on the forefront of developing joint partnerships like this with private industry," explained Bob Allen, Chief of YPG's Public Works Directorate. "The benefit is that it demonstrates the applicability of this renewable energy source in the testing arena. This helps to further the development of this technology, which could be intensely important to everyone in the future," he added.

Electrical power generated by the sun is an alternate energy source that has many advantages over conventionally generated power. Most important, solar power is not dependent on the Earth's

limited supply of fossil fuel, results in fewer environmental pollutants, and decreases America's reliance on foreign oil. Less than half of the petroleum needed by our Nation is produced domestically.

### **Conclusion**

The Smart Weapons Test Range is another important investment that helps make YPG a leader in the munitions test area.

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*CHUCK WULLENJOHN is Chief of the Public Affairs Office at U.S. Army Yuma Proving Ground, AZ. He is a graduate of Humboldt State University and has completed post-graduate work at San Jose State University and Hayward State University, all in California. He is a frequent contributor to this magazine and other military publications. He is also an active Reservist in the U.S. Coast Guard.*

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